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ABSTRACT

Using David Leonard's article, "Using the Web for Graduate Courses in Technical Communication with Distant Learners," as a point of departure, this paper examines variations of Leonard's four factors that contribute to the success of a Web-based course in light of an online Introduction to Technical Writing course designed and taught by the author. The paper considers issues of instructor/student interactions in the online classroom, online classroom instructors, technology and technical support, and a supportive administration. It finds that online technology can be integrated into an introductory technical writing course and function as a positive force in that course. (NKA)

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TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

Issues and Challenges Associated with the Development of Online Technical Writing Courses

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Using David Leonard's article, "Using the Web for Graduate Courses in Technical Communication with Distant Learners," as a point of departure, this essay will examine variations of Leonard's four factors that contribute to the success of a web-based course in light of an online Introduction to Technical Writing course designed and taught by the author.

Instructor/Student Interactions in the Online Classroom

Students have various perceptions about the various aspects of online classes. My students tended to have a knee-jerk negative reaction to the technology at first. The exceptions to this rule were the Applied Computer Science students who seemed very relieved at seeing computers in an English course.

Instructors need to realize that most of their students are not going to feel at home with the technology, at least in the beginning of the course. Most students have used a computer to compose a paper, check their e-mail, or poke about on the web.

If the students continue to work on the machines, most anxiety will slowly ebb. Some of my most computer-phobic students eventually started to see the benefits of working online. They liked the fact that the instructor was always available to them. Some of my students took advantage of their ability to send multiple copies of projects to me for comments. These students usually ended up with better projects due to the extra commentary that using e-mail offered.

Yet, my students did dislike some aspects of the course. If the computer lab that houses the course is less than adequate, an online course will quickly bring that fact to the surface. The stress and strain that this type of course places on the individual work stations and the server can be extreme. Older machines and servers tend to force the students to wait for various operations to be completed. Students dislike waiting, especially if they are used to a speedy machine.

Some students will view the platform being used in the course as the enemy and, thus, not to be trusted. There are many computer users that have extreme loyalty to their platform, whether it be IBM compatibles or Macintosh,

and dislike using anything else. This allegiance can get in the way as the students spend more time complaining about the technology than it would take to learn to use it.

The major problem that students encounter is the problem of lack of access. Students who do not have a computer at home are at a distinct disadvantage in an online environment. For these students, checking the syllabus involves a drive to campus, finding a parking space, walking to an open lab and accessing the page. These students tend to dislike the technology and the problems that it creates. To combat their lack of access, they usually print the syllabus en masse so that they can clip it into their notebook and take it with them.

Working students are at a disadvantage as well. These are the students that are unable to have access to the campus labs due to job constraints or family ties. A student who is also working second shift at a local business will not be able to take advantage of the labs due to time constraints. Young parents find themselves with the same problems. How can they balance school, a family and having access to the syllabus? The syllabus is usually abandoned first, and quite rightly so.

The problem of access will eventually wane as more of the general public views personal computers as important in their daily lives. With the wide variety of retail and used computer stores, most anyone can afford a computer that chooses to do so. Computers used to be quite expensive, but the prices continue to fall. Critics may point out that this is just another division between the have's and the have not's. I disagree. Obviously, the cost is still a hurdle, but there was a time that books were so wildly expensive, that they were chained to the podiums that they rested upon. Today, one would be hard pressed to find a household without at least one book. I believe that computers, the years to come, will follow suit.

Instructors need to be aware of certain issues in an online course. They need to be particularly attentive to disk crashes and other hardware failures. A student cannot be held responsible for a crashed hard disk or broken scanner. Obviously, this is beyond the student's control and adjustments must be made on the fly. It is particularly helpful if the instructor is familiar with and has on hand several disk recovery programs, such as Norton Disk Doctor, Disk First Aide and others, to aid the student in trying to recover the lost work. Often, what a student assumes to be forever lost can be pulled from a defective disk and salvaged.

Most of the students who are unfamiliar with the technology end up finishing the first project early due to anxiety about possible crashes. As the course progresses and the students become familiar with the technology, this early finishing tends to evaporate. However, it is worthwhile to note that some employers may tend to feel that documents submitted must, in fact, generate

discussion on the project. In industry, there are no grades, so a sub-par memo may slip through. However, habitual tardiness or poor documents can lead to an employee's termination.

Instruction in the usage of technology needs to come during classtime so that the greatest number of students can be reached at once. Usually, the basic instruction will be found at the beginning of the course. This instruction could be as simple as saving to disk, saving to the classroom server, printing and a basic tour of the suite of programs that is offered in the classroom. Then, the rest of the instruction would be sprinkled throughout the semester. This could take the form of showing students how to use the scanner, how to place, move and crop graphics in PageMaker, or any other aspect of the technology that the instructor deems worthy of teaching the course.

While an instructor needs to be willing to teach the technology that is found in her classroom, she should not descend into becoming a technical support person for her lab. It is expected that an instructor will troubleshoot a bit as her course is in progress, but there needs to be a person, or team, who manages the lab and its day-to-day operation.

Online Classroom Instructors

Instructors need to be aware that they will encounter some student resistance in any course that makes extensive use of technology. Many students are already familiar with another platform of computing so are reluctant to venture into the unknown. Some of the students only feel that they are learning the technology for the single purpose of the course. Some students may not have used computers before, or, may not have used computers in the manner in which they will be used in the course. The instruction of these students will also create resistance. Some students may have had poor experiences with computers or computer-enhanced classes.

The first step to counter student hostility towards "forced" technology is for the instructor to be aware of these feelings on the part of her students. This can, and does, go a long way toward making the students feel at ease. If the instructor appears to be aware of the anxiety, the student will be more likely to approach the instructor with technology problems. My course was filled with students who used the Windows platform. As I was teaching the students the basics of the Macintosh system, I kept trying to relate the various aspects of the Macintosh operating system to those of a Windows machine. It offered students a gauge for the technology and it also illustrated that I was aware of the uncertainties on the students' part with the technology.

Instructors should be willing to spend the time to take several "test runs" with any new equipment or technology. Knowing what will show on the screen when this technology is used in class is very important. An instructor does not want

to have to fumble through a maze of menus and sub-menus to find one command or setting.

The instructor needs to be experienced on the platform being used. If the instructor leads the class through the technology without stumbling, the students' fears will be eased as it will be obvious that the instructor is a seasoned user. This confidence will reflect in the students as a willingness to learn from the instructor when the technology becomes very difficult. The students will have faith in the instructor and her abilities.

Yet another way to ease the fears is to factor a day, or two, into the syllabus for computer instruction. On these days, I expect for the students to do nothing more than accustom themselves to the network. The instructor can give hands-on instruction on using e-mail, using the scanner, using the classroom server and other aspects of the technology. While an instructor may lose a day or two of instruction time, the deficit will more than be overcome as the students are able to progress through the course armed with this knowledge from the first day.

An instructor needs to have an idea of just what aspects of the course are more fluid, and what aspects are non-negotiable. When I teach Introduction to Technical Writing, I find that I loosen up a bit at the beginning of the course. The reasoning behind this is that most students are familiarizing themselves with the Macintoshes and the translation software. I expect to have students push the deadlines for the first drafts.

Instructors need to be aware that by bringing computers into the classroom, they will surrender some of the control of the course to the machines. Often, students will be more interested in what is happening on the computers than in what the instructor has to say. This is to be expected if we wish for the students to see the computer as a vehicle to take them other places. The instructor can attack this problem in one of three ways. All have pros and cons.

First, the instructor can simply ignore the problem. The student who pokes about on ESPN with Netscape in a Technical Writing course will be the same student who reads the campus newspaper in a large lecture. It is next to impossible to make an uninterested student pay attention. Most instructors concentrate on those students who are interested in the course and want to be there. Class time needs to be structured so that students will have time for the computers, but that there will also be clearly stated time for lecture.

Second, the instructor can use the student's interest in the technology to access important information. Lecture notes, course assignments and other important materials may be placed on line. This not only aides the students who just cannot seem to tear themselves away from the computer, it also assures that all students will have complete access to all course materials. If a

student misses class for an illness, she knows that any important materials will be waiting for her on line when she returns to the classroom, or her computer.

Lastly, the instructor can have the class meet facing away from the computers. Although it sounds quite simple, having the class turn their chairs away from the computers to form a circle does facilitate discussions and also removes the temptation of the computer. If students cannot easily access the machines, they cannot use them at inappropriate times. Again, structured time is the key.

The online course needs to be very organized. Since some students are in a foreign territory and looking for any excuse to abandon the web-based course, all of the materials must be constructed to reduce down time. Anything that slows loading should be closely examined to determine if it is really needed.

There should be a jump page with links to every "hot spot" in the course web so that students can instantly jump to the needed page without having to follow a tenuous trail. This cuts down on students having to recreate a list of links or bookmarks to access the needed materials. If students visited a page regularly, I added a link to the jump page. My syllabus, for instance, had links that instantly returned the student to the first page of the syllabus. This sped up moving about on the web.

Technology and Technical Support

Technology and technical support play key roles in the success of an online course. There are two main issues that deserve attention.

Platform Incompatibilities

Since my course was taught in a Macintosh classroom and this technology is a minority platform, the main problem that arises comes from the student who wishes to do work on another machine, usually running Windows. There are two basic ways to skirt this trouble, short of taking projects on paper.

The first course of action is to take no action. If students insist on resisting the technology, they are free to do so. The students complain until their hearts are content, but the assignments are still required to be completed in the required format, whether that format is Macintosh or Windows. There are many translation programs that students can use and Word for Windows 6.0 has a "save as Macintosh" option that students can use to reformat their work.

Leaving the students to flounder without aid only angers the students and increases the amount of resistance that an instructor will encounter in the semester. I don't consider this to be an option. While I want students to use then Macintosh, I do not want the students to be so uncomfortable with the technology that their work suffers.

Even Word for Windows "save as Macintosh file" option is less than desirable. Students were forced to open the document and remove the translation errors. These errors manifest themselves as "garbage characters" and can play havoc with the spacing and tab sets in a document almost to the point of making comments on the format useless. These problems will not be so troublesome in a Windows lab as Windows machines are used by more students than the Macintoshes.

The second choice is to give in to the students and accept projects in a variety of formats. While Macintosh servers will accept files of differing formats, reading these formats is a different story. To read all of the formats that my students used in class, I would need access to a Macintosh, an IBM using DOS, an IBM using Windows 3.1 and a IBM using Windows '95. Although, I could triple up on the Windows and DOS machines, I still would need access to two machines and four operating systems to simply grade my papers.

This argument is complicated even more when one realizes that there are differing versions of the same course. One could teach a technical writing course that makes no use of online technology at all. For this teacher, the variety of programs would not make much of a difference as the students would hand in all of their work on paper. The program that created the projects would be, for the most part, irrelevant.

For the instructor that uses online technology wholly, the program used for creation would not matter as much either. If the projects are created to be placed on the web, the students are forced to use HTML. This format is easily read by any browser. It would not matter if the student used, for instance PageMill to create the documents. Once it was on the web, anyone with a graphical browser could access it.

The real trouble comes in when the instructor is making partial use of the technology. This partial use usually manifests itself in e-mail messages with attachments for comments and grades. When an instructor receives a document as an attachment, the program that created the document must be present for the instructor to access the document. For instance, an instructor would need Quark to open a Quark document. Some other programs might be able to open the document, but some of the formatting may be lost. These instructors are the individuals who will bear the brunt of the problems with multiple platforms.

It is an interesting point to note that when students enter the work force as Technical Writers, they will be forced to learn a plethora of programs on many computer systems to complete their tasks. I discuss this fact with my class at the beginning the semester to try and head off any ill will toward a classroom with a minority platform. I tell my students that a Technical Writer may have

to shift from Quark to PageMaker to ToolBook to Word for Windows in order to complete an assigned task. Students will not be able to fall back upon the cry of "I only use my platform." Forcing students to become used to foreign technology is a positive effect. The resistance will then come about in the classroom where it is tolerated a bit more than the workplace.

Also, if the students are forced to learn the technology in the classroom, the resistance will have faded by the time the student is forced to use other systems in the workforce. Students will have, at the very least, become familiar with several operating systems and will not be lost when their job calls them work on several different platforms.

Hardware/Network Outages

This problem is one of the largest that an instructor will face when moving a course into cyberspace. The students, department and administration may be excited at the prospect, but if the technology is not rock steady, the course is in danger of foundering. As Scott points out, "The migration is seldom entirely painless" (55). The apparatus needs to be in place and, preferably, troubleshot for problems before the course starts. When I taught my section, almost half of the problems I faced could be linked directly to malfunctioning equipment.

Any instructor that has taught for two semesters in a computerized environment will recount that the first rule of teaching in a computerized environment is to always have something else that is not computer intensive ready to bring into class if the hardware fails. Obviously, with a computerized course, this is not a realistic possibility. There are several steps that any instructor can take to lessen the damage that rogue equipment can wreak on a course.

The most important step would be to know the technology that is being taught. Instructors are moved from classroom to classroom and platform to platform. If an instructor is familiar with most computer systems, very familiar with the systems she teaches, she will know how to quickly and unobtrusively fix small errors as they arise. This keeps the class on track and the students' faith in the instructor and in the technology.

Instructors should become familiar and friendly with the person, or persons, who are in charge of maintenance for the computer classroom, if such persons exist in the department. While this may not head off problems, it can certainly speed up the process of resolving them. Many departments have one or two persons who are in charge of fixing all of the department machines which may number in the hundreds. Being able to have your problems moved up on the list of things to fix is a valuable tool.

If there are machines, but no one person to shepherd them, the problems become even more complicated. Departments must be willing not only to spend money on hardware and software, but also a person, or team of persons, to take care of these machines. Without constant tending, they will go down and stay down. The instructor then spends more time troubleshooting than teaching. Departments must be willing to spend what it takes to keep the machines running.

Instructors need to be familiar with the technology as well. Even in the best of situations, there are certain pieces of equipment that are needed. Ideally, these pieces of hardware would be found in every lab. Realistically, they are found in a very few, well funded labs. Instructors and administrations should be careful to widen the gulf between students. This newly-added technology needs to be available for all to use.

The most important technique for surviving in a computer-enhanced classroom is to be flexibility. For example, my wishes of e-mail submissions were dashed when our e-mail server kept going down on a daily basis. I had to be willing to skirt this problem and come up with an alternate solution. I used the English Department's server as a drop box and things progressed well.

Supportive Administration

One of the most overlooked aspects of a successful online course is the backing of a supportive administration. If the administration does not support the course, it will not succeed.

One of the most important ways that an administration can support a course is financially. Online classes do not come with an inexpensive price tag. With the initial costs of setting up a lab rising into the hundreds of thousands of dollars, an administration needs to be willing to spend they money to move their classes into cyberspace. Even after the classroom is created and stocked with hard and software, the administration has to be willing to spend money each year for software upgrades, hardware upgrades, maintenance, and a technical support staff. All of these expenditures are needed and the lab will suffer if there are any shortcomings.

An administration needs to be willing to support its faculty as well. Moving a course into cyberspace and away from the status-quo can draw flak for the faculty. These attacks can come from students, students' families, other administrations or other faculty. The administration needs to be willing to support their people and have faith in them and what they are doing. If an administration caves in at the first outside attack, the online course cannot succeed.

Conclusion

I feel quite strongly that online technology can be integrated into an Introduction to Technical Writing course and function as a positive force in that course. The technology is in place to give instructors the ability to instantly access all of their students. This same technology gives the students unprecedented access to their instructors. In the days of administrational pressures for a maximum number of contact hours, I cannot see how this technology would be anything but a boon to students and faculty alike.

Works Cited

Leonard, David C. "Using the Web for Graduate Courses in Technical Communication with Distant Learners." Technical Communication 43 (1996): 388-402.